

How To Interactively Operate The Global Hawk UAS NOAA/NASA ENSO Payload, From Your Armchair, Five Thousand Kilometers Away

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This paper will describe the information technologies developed by NASA and NOAA for the February 2016 Sensing Hazards with Operational Unmanned Technology (SHOUT) El Niño Southern Oscillation (ENSO) Campaign.

The air vehicle is a NASA Global Hawk UAS, with a primary payload of four instruments, two developed by NASA, two developed by NOAA.

The aircraft is based at the NASA Armstrong Flight Research Center, Edwards Air Force Base, California.

The payload components are remotely operated by scientists at various facilities, and the data collected downloaded over satellite links in real time for analysis and collaboration.

NOAA: Advanced Vertical Atmospheric Profiling System (AVAPS), developed by NCAR, which deploys dozens of dropsondes at altitudes up to 65,000 ft to collect high vertical resolution measurements of the temperature, pressure, relative humidity, and wind speed and direction.

NASA: High-Altitude Imaging Wind and Rain Airborne Profiler (HIWRAP), a radar designed to examine the factors of storm intensity: formation, structure and intensification.

NOAA: O3 Photometer (UAS-O3), designed specifically for autonomous, precise, and accurate O3 measurements in the upper troposphere and lower stratosphere (UT/LS).

NASA JPL: High Altitude MMIC Sounding Radiometer (HAMSR), an atmospheric microwave temperature and humidity sounder instrument that looks at the microwave spectrum.

Refs:
<http://uas.noaa.gov/shout/>
<https://airbornescience.nasa.gov/instrument/UAS-O3>